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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,721	05/08/2001	Suresh Singamsetty Kumar	004939.P006	3643

5073 7590 01/11/2005

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EXAMINER

CAO, DIEM K

ART UNIT PAPER NUMBER

2126

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,721

Applicant(s)

KUMAR ET AL.

Examiner

Diem K. Cao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1 – 20 are pending in the current application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (U.S. 5,727,214) in view of Pai (Flash: An efficient and portable Web server), both references cited in the previous office action.

4. As to claim 1, Allen teaches a finite state machine operating within a thread environment (cursor state machine; col. 7, line 65 - col. 8, line 14), one or more message generators configured to pass event information contained in message to the finite state machine (Event...function new_event (), port of origin; col. 7, line 66 – col. 8, line 5 and New_event() is the procedure called by a process sending an event to the object; col. 9, lines 1 – 6), wherein the finite state machine changes states according to the event information (The object lock state machine, the main cursor state machine; col. 8, lines 25-57 and Figs. 7A, 78 and Accept-event () ... state transitions in the cursor state machine 126; col. 9, lines 30-33).

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5. However, Allen does not teach a portable thread environment. Pai teaches a portable thread environment (portable Web server; page 1, right column, 4th paragraph), wherein a plurality of threads communicate with each other (p. 3, section 3.2, 2nd paragraph).

6. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Allen and Pai because portable thread environment will improve the performance of Allen's system by combining the high performance of single-process event-driven servers on cached workloads with the performance of multi-process and multi-threaded servers on disk-bound workloads (abstract).

7. As to claim 2, Allen teaches the event information comprises one or more events passed to a thread and a present state of the finite state machine (the software object ... a single thread object; col. 8, lines 1-5 and When an object's port ... cursor state machine for use in objects having synchronous ports; col. 8, lines 11-15).

8. As to claim 3, Allen teaches a message interpreter configured to accept the messages (The event dispatcher . . . for the main system; col. 3, lines 58-65), wherein the interpreter maps the messages to actions using the look-up table (The event dispatcher utilizes a disposition ... of the major state variable; col. 4, lines 18-22 and col. 3, line 66 - col. 4, line 5 and col. 11, lines 1-11).

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9. As to claim 4, Allen teaches the finite state machine further comprises a storage device for storing the one or more action (every port is endowed with a set of disposition ... events; col. 11, lines 31-41 and a Disposition Rank Matrix 200; col. 12, lines 7-11), said actions used to generate PTE messages (col. 7, line 66 – col. 8, line 5 and col. 9, lines 1 – 6).

10. As to claim 5, Allen teaches the finite state machine further comprises a state changer configured to change the state of the finite state machine based upon event information and the previous state of the finite state machine (Accept-event() ... cursor state machine 126; col. 9, lines 30-33 and Figs. 7A-7B).

11. As to claim 6, see rejections of claims 1 and 5 above. As to the event information comprising the present state of the finite state machine, Allen teaches that the content of the event determines if an event is accepted (i.e. col. 11, line 52 – col. 12, line 7) and in effect causes the state transition in the cursor state machine.

12. As to claim 7, Allen teaches the finite state machine stays in the first state based upon the first state and the action (Object Locked state; Fig. 7A and Event submitted state; Fig. 7B).

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13. As to claim 8, Allen teaches generating state machine events relating to the state of the finite state machine (Event Dispatching, it can also calls to new_event() to submit additional events to itself or to another object; col. 10, lines 27-44).

14. As to claim 9, Allen as modified teaches distributing the state machine events between one or more threads in the portable thread environment (to itself or to another object; col. 10, lines 40-44).

15. As to claim 10, Allen as modified teaches distributing the state machine events between one or more threads in the portable thread environment and a second portable thread environment (it can also calls to new_event() to submit additional events to itself or to another object; col. 10, lines 27-44 and Jam event; col. 9, lines 48-52 and Band State Machine; col. 7, lines 6 -33).

16. As to system and computer product claims 11 and 16, they correspond to the method claim of claim 6, respectively.

17. As to claims 12 and 17, see rejection of claim 7 above.

18. As to claims 13 and 18, see rejection of claim 8 above.

19. As to claims 14 and 19, see rejection of claim 9 above.

20. As to claims 15 and 20, see rejection of claim 10 above.

Response to Arguments

21. Applicant's arguments filed August 23, 2004 have been fully considered but they are not persuasive.

In response to the Non-Final Office Action dated June 15, 2004, applicant argues:

(1) Pai clearly abandons the use of threads communicating with each other in favor of independent threads that are synchronized via an operating system (p. 7, lines 26 – 30);

(2) Allen does not teach, suggest, or disclose that the event information comprises the “present state of the finite state machine” (p. 8, lines 5 – 7);

(3) Allen further illustrates the cursor state machine 126 as separate from, not comprising, the event dispatcher 186 (p. 8, lines 15 – 16);

(4) Allen does not teach, suggest, or disclose using actions to generate PTE messages (p. 8, lines 19 – 20);

(5) Allen teaches distributing events generated from and relating to a main state chart, not distributing state machine events (p. 9, lines 5 – 6); and

(6) Allen does not teach, suggest, or disclose “distributing state machine events . . . in the portable thread environment and a second portable thread environment (p. 9, lines 22 – 24).

As to argument (1), examiner respectfully disagrees. Although Pai discloses independent threads, these threads communicate with each other through shared global variables and access to the shared data is controlled through a synchronization mechanism (p. 3, section 3.2, 2nd paragraph). When a first thread changes the global variable and a second thread accesses the changed global variable, the first thread communicates data stored in the changed global variable to the second thread. Since the claims do not define the method thread communication, it is reasonable to interpret thread communication as threads communicating through shared global variables.

In response to argument (2), examiner respectfully disagrees because Allen teaches that the acceptance of an event causes state transitions in the cursor state machine (col. 9, lines 30 – 35). Allen teaches that the content of the event determines if an event is accepted (i.e. col. 11, line 52 – col. 12, line 7) and in effect causes the state transition in the cursor state machine.

As to argument (3), examiner agrees with the applicant that the cursor state machine is separate from the event dispatcher. However, examiner notes that it is obvious that cursor state machine could implement the message interpreting and mappings functions. For example, the cursor state machine includes methods that interpret a message (i.e., Scatter_event(); col. 9, lines 25 – 29) and map a message (i.e., col. 9, lines 45 – 47; col. 12, lines 52 – 60).

As to argument (4), examiner respectfully disagrees and submits that Allen teaches using actions to generate PTE messages (col. 7, line 66 – col. 8, line 5 and col. 9, lines 1 – 6).

With regard to arguments (5) and (6), examiner respectfully disagrees and notes that Allen as modified teaches all the claimed limitations. Each port in Allen's invention includes one or more state machines (i.e. col. 5, lines 39 – 54) and the ports exchange event messages with each other.

Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Diem K. Cao whose telephone number is (571) 272-3760. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

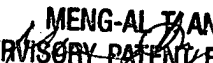
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Diem K. Cao
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Art Unit 2126

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